

WHAT IS CLAIMED IS:

1. An isolated and purified DNA molecule encoding a *Candida albicans* protein with integrin-like motifs that hybridizes to DNA complementary to DNA having SEQ ID NO:1 under the stringency conditions of hybridization in buffer containing 5x SSC, 5x Denhardt's, 0.5% SDS, 1mg salmon sperm/25 mls of hybridization solution incubated at 65°C overnight, followed by high stringency washing with 0.2x SSC/0.1% SDS at 65°C.
2. The DNA molecule of claim 1 wherein the *Candida albicans* protein with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to encode a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence with a single tyrosine residue.
3. An isolated and purified DNA molecule encoding the *Candida albicans* protein with integrin-like motifs which has an amino acid sequence having SEQ ID NO:2.
4. An isolated and purified DNA molecule having SEQ ID NO:1.
5. A vector comprising the DNA of claim 4.
6. A cell line transformed by an extrachromosomal plasmid containing non-native DNA encoding the *Candida albicans* protein with integrin-like motifs, wherein said DNA hybridizes with DNA complementary to DNA having SEQ ID NO:1 under the stringency conditions of hybridization in buffer containing 5x SSC, 5x Denhardt's, 0.5% SDS, 1mg salmon sperm/25 mls of hybridization solution incubated at 65°C overnight, followed by high stringency washing with 0.2x SSC/0.1% SDS at 65°C.
7. The cell line of claim 6 wherein the *Candida albicans* protein with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to encode a transmembrane domain, an internal RGD tripeptide, and a

carboxy-terminal sequence with a single tyrosine residue.

8. The cell line of claim 6 comprising *S. cerevisiae*.

5 9. A cell line transformed by an extrachromosomal plasmid containing non-native DNA encoding the *Candida albicans* protein with integrin-like motifs, which has the amino acid sequence having SEQ ID NO:2.

10. The cell line of claim 9 comprising *S. cerevisiae*.

10 11. A cell line transformed by an extrachromosomal plasmid containing non-native DNA encoding the *Candida albicans* protein with integrin-like motifs, the DNA having SEQ ID NO:1.

15 12. The cell line of claim 11 comprising *S. cerevisiae*.

13. An isolated and purified *Candida albicans* protein with integrin-like motifs comprising an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to encode a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence with a single tyrosine residue.

20 14. The isolated and purified *C. albicans* integrin-like protein of claim 13, which has an amino acid sequence having SEQ ID NO:2.

25 15. An isolated and purified peptide, which has an amino acid sequence having SEQ ID NO:3.

16. An isolated and purified peptide having an amino acid sequence selected from the group consisting of:

30 (a) YLS PTN NNN SKN VSD MDL HLQ NL (SEQ ID NO:4);

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(b) DWK LED SND GDR EDN DDI SRF EK (SEQ ID NO:5);
(c) SKS ANT VRG DDD GLA SA (SEQ ID NO:6);
(d) DHL DSF DRS YNH TEQ SI (SEQ ID NO:7); and
(e) WIQ NLQ EII YRN RFR RQ (SEQ ID NO:8).

10 17. An isolated and purified antibody to a *Candida albicans* integrin-like protein, which has an amino acid sequence having SEQ ID NO:2.

15 18. An isolated and purified antibody to a peptide which has an amino acid sequence having SEQ ID NO:3.

20 19. An isolated and purified antibody to a peptide having an amino acid sequence selected from the group consisting of:
(a) YLS PTN NNN SKN VSD MDL HLQ NL (SEQ ID NO:4);
(b) DWK LED SND GDR EDN DDI SRF EK (SEQ ID NO:5);
(c) SKS ANT VRG DDD GLA SA (SEQ ID NO:6);
(d) DHL DSF DRS YNH TEQ SI (SEQ ID NO:7); and
(e) WIQ NLQ EII YRN RFR RQ (SEQ ID NO:8).

25 20. A vaccine comprising a *Candida albicans* integrin-like protein or peptide having an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, and combinations thereof.

22. The method of claim 21 wherein the cells are epithelial cells.

23. The method of claim 22 wherein the cells are human epithelial cells.

24. The method of claim 21 wherein the *Candida albicans* integrin-like protein has an amino acid sequence which is SEQ ID NO:2.

5 25. A method of inhibiting adhesion of *Candida albicans* to cells, comprising contacting the cells with antibodies to a peptide, which has an amino acid sequence having SEQ ID NO:3.

10 26. A method of inhibiting adhesion of *Candida albicans* to cells, comprising contacting the *Candida albicans* with antibodies to a peptide having an amino acid sequence selected from the group consisting of:

(a) YLS PTN NNN SKN VSD MDL HLQ NL (SEQ ID NO:4);
(b) DWK LED SND GDR EDN DDI SRF EK (SEQ ID NO:5);
15 (c) SKS ANT VRG DDD GLA SA (SEQ ID NO:6);
(d) DHL DSF DRS YNH TEQ SI (SEQ ID NO:7); and
(e) WIQ NLQ EII YRN RFR RQ (SEQ ID NO:8).

27. A method of delivering a gene product to a subject, comprising administering *S. cerevisiae* transformed by an extrachromosomal plasmid containing non-native DNA encoding the *Candida albicans* protein with integrin-like motifs.

28. An isolated and purified antibody to a *Candida albicans* integrin-like protein, which has an amino acid sequence having SEQ ID NO:2.

29. The antibody of claim 28 wherein the antibody is monoclonal, polyclonal, or combinations thereof.

30. The antibody of claim 28 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 30 percent.

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31. The antibody of claim 30 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 50 percent.

32. An isolated and purified antibody to a peptide which has an amino acid sequence having SEQ ID NO:3.

33. The antibody of claim 32 wherein the antibody is monoclonal, polyclonal, or combinations thereof.

34. The antibody of claim 32 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 30 percent.

35. The antibody of claim 34 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 50 percent.

36. An isolated and purified antibody to a peptide having an amino acid sequence selected from the group consisting of:

- YLS PTN NNN SKN VSD MDL HLQ NL (SEQ ID NO:4);
- DWK LED SND GDR EDN DDI SRF EK (SEQ ID NO:5);
- SKS ANT VRG DDD GLA SA (SEQ ID NO:6);
- DHL DSF DRS YNH TEQ SI (SEQ ID NO:7); and
- WIQ NLQ EII YRN RFR RQ (SEQ ID NO:8).

37. The antibody of claim 36 wherein the antibody is monoclonal, polyclonal, or combinations thereof.

38. The antibody of claim 36 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 30 percent.

39. The antibody of claim 38 wherein the antibody blocks *Candida albicans* adhesion to

epithelial and/or endothelial cells by at least about 50 percent.

40. An isolated and purified antibody to a *Candida albicans* peptide with integrin-like motifs encoded by a polynucleotide that hybridizes to DNA complementary to DNA having SEQ ID NO:1 under stringency conditions of hybridization in buffer containing 5x SSC, 5x Denhardt's, 0.5% SDS, 1mg salmon sperm/25 mls of hybridization solution incubated at 65°C overnight, followed by high stringency washing with 0.2x SSC/0.1% SDS at 65°C.

5 10 41. The antibody of claim 40 wherein the *Candida albicans* peptide with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to form a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence having a single tyrosine residue.

15 42. The antibody of claim 40 wherein the antibody is monoclonal, polyclonal, or combinations thereof.

20 43. The antibody of claim 40 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 30 percent.

44. The antibody of claim 43 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 50 percent.

25 45. The antibody of claim 40 wherein the *Candida albicans* peptide with integrin-like motifs is encoded by a polynucleotide having SEQ ID NO:1.

46. An isolated and purified antibody to a *Candida albicans* peptide with integrin-like motifs, wherein the *Candida albicans* peptide is selected from different morphological stages of *Candida albicans* development consisting of blastospores, germ tubes, and hyphae, and wherein the antibody blocks *Candida albicans* peptide

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adhesion to epithelial cells.

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47. The isolated and purified antibody of claim 46 wherein the antibody blocks *Candida albicans* epithelial cell adhesion by at least about 30 percent.

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48. The isolated and purified antibody of claim 46 wherein the *Candida albicans* peptide with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to form a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence having a single tyrosine residue.

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